

what is claimed is:

1. A device for supplying oxygen to a patient for treatment of a wound or condition comprising:

a wound dressing adapted for receipt over a wound or injury treatable with oxygen;

a portable oxygen generating device remote from said wound dressing for supplying oxygen to the skin wound, said device comprising an anode, a cathode, a power source and a phosphoric acid treated ion conducting membrane for electrochemically producing oxygen;

a conduit fluidly connecting said oxygen generating device with said wound dressing.

2. A device for supplying oxygen according to claim 1, wherein said conduit is a flexible tubing.

3. A device for supplying oxygen according to claim 2, wherein said wound dressing is a woven four part compression dressing for treating venous ulcers.

4. A device for supplying oxygen according to claim 2, wherein said tubing is woven between the individual layers of the compression dressing.

5. A device for supplying oxygen according to claim 2, wherein said oxygen is delivered subdermally.

6. A device for supplying oxygen according to claim 2, further comprising a syringe fluidly connected to an end of said tubing for subdermal delivery of oxygen.

7. A device for supplying oxygen according to claim 2, further including a semipermeable membrane for preventing microbial reflux into the oxygen producing device.

8. A device for supplying oxygen according to claim 2, wherein the production of oxygen occurs according to a four electron process.
9. A device for supplying oxygen according to claim 2, wherein said ion conducting membrane is a perfluorinated ionomeric membrane.
10. A device for supplying oxygen according to claim 2, wherein said power source which applies a current across said cathode and anode.
11. A device for supplying oxygen according to claim 2, further including a catalyst in at least one of said anode and cathode.
12. A device for supplying oxygen according to claim 11, wherein said catalyst comprises Pt-Ir.
13. A device for supplying oxygen according to claim 2, wherein said device generates between about 1 to about 50 ml oxygen/hr under standard temperature and pressure.
14. A device for supplying oxygen according to claim 2, wherein said device is capable of producing oxygen for several weeks without the addition of water to the device.
15. A device for supplying oxygen according to claim 2, wherein said tubing is perforated with a plurality of holes to for in vivo treatment.
16. A device for supplying oxygen according to claim 2, wherein said oxygen generating device is mounted on a patient.
17. A device for supplying oxygen to a patient for treatment of a wound or condition comprising:  
a wound dressing adapted for receipt over a wound or injury treatable with oxygen; and

a portable oxygen generating device for supplying oxygen to the skin wound, said device comprising an anode, a cathode, a power source and a phosphoric acid treated ion conducting membrane for electrochemically producing oxygen.

18. A device for supplying oxygen according to claim 17, wherein said device generates between about 1 to about 10 ml oxygen/hr under standard temperature and pressure.

19. A method for treating wounds or conditions using an electrochemical cell, comprising the steps of:

bringing ambient air into contact with a porous cathode mounted in a housing;

reducing oxygen present in the air to neutral species at the cathode;

diffusing the neutral species through a ion conducting membrane to a phosphoric acid treated porous anode mounted in the housing;

oxidizing the neutral species to oxygen at the anode; and

administering a supply of oxygen from the anode to a dressing and an underlying wound or injury.

20. A device for supplying oxygen to a patient for treatment of a wound or condition comprising:

a wound dressing adapted for receipt over a wound or injury treatable with oxygen; and

a portable oxygen generating device for supplying oxygen to the skin wound, said device comprising an anode, a cathode, a power source, an ion conducting membrane for electrochemically producing oxygen, and at least one catalyst associated with at least one of said anode and said cathode.

21. A device according to claim 20, wherein said catalyst is associated with said anode and is selected from the group consisting of Pt-Ir, Pt-Sn, and ternary combinations thereof.
22. A device according to claim 20, wherein said catalyst is associated with said cathode and is selected from the group consisting of Pt-Ir, Pt-Sn, Pt-Ru/C, Pt-C, and ternary combinations thereof.

21. A device according to claim 20, wherein said catalyst is associated with said anode and is selected from the group consisting of Pt-Ir, Pt-Sn, and ternary combinations thereof.
22. A device according to claim 20, wherein said catalyst is associated with said cathode and is selected from the group consisting of Pt-Ir, Pt-Sn, Pt-Ru/C, Pt-C, and ternary combinations thereof.